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10/596,544	06/16/2006	Nityalendra Singh	GJE006-US	7779

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EXAMINER	
NUCKOLS, TIFFANY Z	
ART UNIT	PAPER NUMBER
1716	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/596,544	SINGH ET AL.	
	Examiner	Art Unit	
	TIFFANY NUCKOLS	1716	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *8-21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

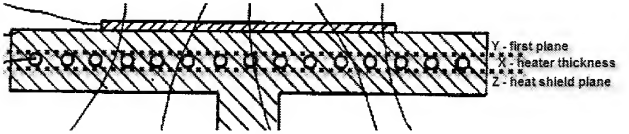
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 3, 4, 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5766364 to Ishida et al in view of U.S. Patent No. 6538872 to Wang et al, U.S. Patent No. 6189482 to Zhao et al, and U.S. Patent No. 5788778 to Shang et al.

4. In regards to Claims 1 and 4, Ishida et al teach a plasma processing apparatus (*See Ishida et al, Fig. 1*) comprising: a chamber (*See Ishida et al, 1 Fig. 1*) within which a substrate (*See Ishida et al, 2 Fig. 1*) is processed in use (*See Ishida et al, Col. 2, line 22*); a first electrode (*See Ishida et al, 4 Fig. 1*) formed from an alloy (*See Ishida et al, Col. 3, line 13*) having substantially planar upper and lower surfaces (*See Ishida et al, see planarity of 4 Fig. 1*), wherein the substrate is placed for processing upon the upper

surface of the first electrode (*See Ishida et al, Col. 3, lines 16 and 2 on 4 Fig. 1*); a second electrode (*See Ishida et al, 105 Fig. 1*); a heater (*See Ishida et al, 3 Fig. 1*) for heating at least the first electrode (*See Ishida et al, implicit by heating the substrate through intimate contact, Col. 3, line 17*) to a processing temperature (*See Ishida et al, Col. 3, line 17*); and a power supply system (*See Ishida et al, 8 Fig. 1*) arranged to cause an electrical discharge between the said first and second electrodes so as to produce the plasma (*See Ishida et al, implicit as it is a plasma processing apparatus, Col. 1 lines 66-67, Col. 2, lines 1-2, 20-26*) in the chamber from one or more gases (*See Ishida et al, Col. 4, lines 2-6*) supplied to the chamber, characterized in that: the heater (*See Ishida et al, 3*) comprises one or more heating members (*See Ishida et al, plurality of 3 Fig. 1*) arranged in a substantially planar manner (*See Ishida et al, see position of members 3 Fig.1*), the heater and electrode forming an assembly (*See Ishida et al, unified pedestal of 3 and 4 Fig. 1*) such that the parts of the one or more heating members that are closest (*See Ishida et al, upper ends of heating members 3 Fig. 1*) to the said upper surface (*See Ishida et al, surface where substrate 2 is positioned Fig. 1*) of the first electrode (*See Ishida et al, 4 Fig. 1*), define a first plane (*implicit, since members 3 are in planar position*) that is separated from the upper surface by a distance Y (*See Ishida et al, see distance between upper ends of heating elements 3 to upper surface of electrode 4 Fig. 1*), the parts of the one or more heating members that are furthest (*See Ishida et al, lower ends of heating members 3 Fig. 1*) from the said upper surface (*See Ishida et al, surface where substrate 2 is positioned Fig. 1*) of the first electrode, define a second plane (*See Ishida et al, implicit, since members 3 are in*

planar position Fig. 1), wherein the separation of the first and second planes defines a heater thickness X (*See Ishida et al, thickness of elements 3 Fig. 1*). Ishida et al teach a second plane is positioned at the bottom of the assembly, i.e., a heat shield, as illustrated in the following annotated copy of Fig. 1 of Ishida et al, the planes therein being implicit as shown by the dotted lines:



5. Ishida et al do not teach the first electrode is made from a nickel alloy.

6. Wang et al teach an electrode (*See Wang et al, 105 Fig. 1*) made from nickel or a nickel alloy (*See Wang et al, Col. 12 line 64-Col. 13 line 2*), nickel implicitly being a form of a nickel alloy that is pure, i.e., > 99% nickel by weight, as supported by Applicant's Specification, paragraph 0024.

7. It would have been obvious to one of ordinary skill in the art at the time of the invention, with a reasonable expectation of success, to alternatively substitute the first electrode in Ishida et al with the first electrode made from a nickel alloy as taught by Wang et al, as art-recognized equivalent means for an electrode. It has been held that an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). See MPEP 2144.06 II.

8. Furthermore, it has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP 2144.07. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

9. Ishida et al in view of Wang et al do not expressly teach wherein Y lies in the range 1.2X to 3X.

10. Zhao et al teach an electrode that rests above a heater (*See Zhao et al, 103 Fig. 7A*) with a thickness of 3-15 mil (*See Zhao et al, Col. 19 lines 45-55*), forming a first plane above said heater, said heater (*See Zhao et al, 107 Fig. 7A*) having a thickness of 5 mil (*See Zhao et al, Col. 20 lines 32-36*). The ratio of the thickness of the electrode to the heater, i.e., the ratio of Y to X is encompasses the range of 1.2X-3X. Zhao et al teaches that the thickness of the electrode is a result effective variable to provide a suitable low electrical resistance to establish a uniform field at during processing (*See Zhao et al, Col. 19 lines 45-55*) and that the thickness of the heater is a result effective variable chosen to achieve suitable power output and to match the compliance of the voltage supply (*See Zhao et al, Col. 20 lines 28-32).*

11. Ishida et al in view of Wang et al disclose the claimed invention except for the range of thicknesses of the electrode in relation to the heater. Zhao teaches a thickness of the electrode plane (Y) above the heater and a heater thickness (X) that encompass the range as recited in the claims.

12. It would have been obvious to one of ordinary skill in the art at the time of the invention, with a reasonable expectation of success, to alternatively substitute the

unknown planar *thicknesses* of the electrode and heater in Ishida et al with the planar thicknesses of the electrode and heater as taught by Zhao et al, as art-recognized equivalent dimensions in a substrate heater and electrode. It has been held that an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). See MPEP 2144.06 II.

13. Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the electrode 1.2X-3X, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233. See MPEP 2144.05 II (A) and case law therein.

14. Ishida et al in view of Wang et al and Zhao et al do not expressly teach the plasma processing apparatus is a fluorine cleaned plasma processing apparatus comprising a gas delivery system comprising a fluorine containing gas, the gas delivery system being configured to supply the fluorine containing gas to the chamber during a plasma cleaning process.

15. Shang et al teaches a plasma processing apparatus with a chamber 10 within which a substrate 16 is processed in use a first electrode 14 having a substantially planar upper and lower surfaces, wherein the substrate is placed for processing upon the upper surface of the first electrode (see arrang. 16 on 14); a second electrode 12; a heated 18 for heating at least the first electrode to a processing temperature and a power system 38 arranged to cause and electrical discharge between the said first and

second electrodes to produce plasma in the chamber from one or more gases 32, 34 supplied to the chamber, and a gas delivery system 444, 46, 48, 50, 53, and 53 comprising a fluorine containing gas 44. the gas delivery system being configured to supply the fluorine containing gas to the chamber during a plasma cleaning process (Col.4 line 4-Col.5 line 14). Shang et al further teach that addition of the gas delivery system for fluorine gas is advantageous to because it involves a separate power supply 48 that supplies high power levels to generate the reactive species for cleaning, which without said gas delivery system would result in replacing damaged parts that are created by high power levels within the chamber in the attempt to generate a cleaning species using the chamber's plasma generating power supplies (Col. 1 lines 24-52).

16. It would have been obvious to one of ordinary skill of the art at the time of the invention to modify the invention of Ishida et al in view of Wang et al and Zhao et al by adding a gas delivery and power system for supplying the cleaning reactive species as taught by Shang et al. One would be motivated to do so in order to reduce the costs of replacing parts in conventional cleaning. The resulting apparatus fulfills the limitations of Claims 1 and 4.

17. In regards to Claim 3, Ishida et al in view of Wang et al, Zhao et al, and Shang et al teach a plane below the heater, i.e., positioned at the bottom surface of the assembly, i.e., a heat shield, as supported by Applicant's Specification, as per the illustrated copy of Fig. 1 of Ishida et al.

18. In regards to Claims 5 and 7, Ishida et al do not expressly teach the first electrode is adapted in use to be heated up to 700°C from ambient temperature within

substantially one hour or less, preferably 45 minutes or less or that the heater comprises a tubular, rod-like, or foil heater.

19. Zhao et al teaches the heater is made of a sheet stock (*See Zhao et al, Col. 20 lines 51-64*), i.e., a foil heater, that is capable of heating from ambient temperature up to 700°C (*See Zhao et al, Col. 20 lines 38-40*) and thus implicitly heating the electrode to 700°C. Zhao et al further teach that the foil heater transfers heat more effectively to the substrate and minimizes heater element breakage and increases its lifetime.

20. It would have been obvious to one of ordinary skill of the art at the time of the invention to substitute the heating element in Ishida et al in view of Wang et al, Zhao et al, and Shang et al with the foil heating element in Zhao et al. One would be motivated to do so to heat the substrate more effectively and increase the lifetime of the heater. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention, with a reasonable expectation of success, to alternatively substitute the heater element in Ishida et al with the heater element as taught by Zhao et al, as art-recognized equivalent means for heating. It has been held that an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). See MPEP 2144.06 II.

21. Ishida et al in view of Wang et al, Zhao et al, and Shang et al do not expressly teach the first electrode is adapted in use to be heated up to 700°C from ambient temperature within substantially one hour or less, preferably 45 minutes or less.

22. However, it has been held that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). As the apparatus of Ishida et al in view of Wang et al and Zhao et al is substantially the same as the claimed apparatus, the apparatus of Ishida et al in view of Wang et al and Zhao et al would be capable of fulfilling the limitations of the claim, there being no structural difference between the apparatus of Miyake and that of the claim. It has been held that language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of claim or claim limitation. *In re Hutchison*, 69 USPQ 138. See MPEP 2106-II.c. As the apparatus of Ishida et al in view of Wang et al and Zhao et al can heat the electrode to 700°C from ambient temperature, it would be capable of doing this within one hour or less, as there is no structural difference between the electrode of Ishida et al in view of Wang et al and Zhao et al and that in the claim.

23. In regards to Claim 6, Ishida et al in view of Wang et al and Zhao et al do not expressly teach the first electrode is adapted to cool in use from 700-400°C in less than 30 minutes.

24. However, it has been held that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). As the apparatus of Ishida et al in view of Wang et al and Zhao et al is substantially the same as the claimed apparatus, the apparatus of Ishida et al in view of Wang et al and Zhao et al would be capable of fulfilling the limitations of the claim, there being no structural difference between the apparatus of Miyake and that of the claim. It has been held that language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of claim or claim limitation. *In re Hutchison*, 69 USPQ 138. See MPEP 2106-II.c. As the apparatus of Ishida et al in view of Wang et al and Zhao et al has no structural difference with that in the claim, and cooling implicitly occurs when the heating member is turned off, the apparatus of Ishida et al in view of Wang et al and Zhao et al would be capable of cooling, thus fulfilling the limitations of the claim.

25. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5766364 to Ishida et al in view of U.S. Patent No. 6538872 to Wang et al, U.S. Patent No. 6189482 to Zhao et al, and U.S. Patent No. 5788778 to Shang et

al, as applied to Claim 1 above and in further view of U.S. Patent No. 6043468 to Toya et al.

26. The teachings of Ishida et al in view of Wang et al, Zhao et al, and Shang et al are relied upon as set forth in the above 103 rejection of Claim 1 above.

27. In regards to Claim 2, Ishida et al in view of Wang et al, Zhao et al, and Shang et al teach the thickness of Z, as per the annotated illustrated copy of Fig. 1 above, but do not expressly teach the range of thickness for Z. Ishida et al in view of Wang et al, Zhao et al, and Shang et al do teach that X is 5 mil and Y is 6-15 ml, as result effective variables, as per the rejection of Claim 1 above.

28. Toya et al teaches a carbon heater (*See Toya et al, Fig. 3*) with a heating member (*See Toya et al, 11 Fig. 3*) with a 2mm thickness and with first (*See Toya et al, t1 Fig. 3*) and second (*See Toya et al, t2 Fig. 3*) planes that are equal in thickness to each other (*See Toya et al, Col. 30 line 43-Col. 21 line 6*).

29. It would have been obvious to one of ordinary skill in the art at the time of the invention, with a reasonable expectation of success, to alternatively substitute the unknown plane thicknesses in Ishida et al in view of Wang et al, Zhao et al, and Shang et al with the first and second plane thickness relationship as taught by Toya et al, as art-recognized equivalent means for providing a heating element, and its relative dimensions or thicknesses. It has been held that an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). See MPEP 2144.06 II. The resulting apparatus would have a W equal to Y, a result effective

variable of electrode thickness, of 15 mil and Z would by Z=Y+W+X=15+15+5=35 ml=2.33Y.

Response to Arguments

30. Applicant's arguments filed 01/29/2010 have been fully considered but they are not persuasive.

31. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection, which are necessitated by the amendments to the claims. Namely, Shang et al remedies any limitations requiring the apparatus to be fluorine gas cleaned apparatus.

32. In regards to the argument that all of the references have been in the public domain but not have been combined in practice, leaving the problems unsolved in the field, this is not considered a valid argument against the obviousness of the claimed invention by the applicant to one of ordinary skill in the art. Although each element of the references used have not been used in the art together in the art, because they are all elements in the art of plasma processing, it would be obvious to substitute or modify the recited elements as rejected above. Thus although it has never been combined before in practice, as per the Applicant's argument, it doesn't mean it couldn't be combined as per the teachings and suggestions of the references as applied in the above rejection.

33. In response to applicant's argument that U.S. Patent No. 5766364, U.S. Patent No. 6538872 to Wang et al, U.S. Patent No. 6043468 to Toya et al, U.S. Patent No. 6660975 to Wang et al ('975), and U.S. Patent No. 6189482 to Zhao et al are

nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, because the art is related to plasma processing or semiconductor processing, it is analogous to the applicant's art of plasma processing as supported by page 1 of the Specification.

34. In response to the argument that '872 teaches a preferred embodiment of molybdenum, and that embodiment teaches away from the recited claims because it would deter one of ordinary skill in the art at the time of the invention, the Examiner respectfully disagrees. According to the MPEP, 2123 [R-5] I and II, Patents are relevant as prior art for all that they contain and non-preferred and alternative embodiments constitute prior art. *In re Heck*, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting *In re Lemelson*, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)).*In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). *In re Fulton,* 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004). *Merck & Co. v.Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). *Upsher-Smith Labs. v. Pamlab*, LLC, 412 F.3d 1319, 1323, 75 USPQ2d 1213, 1215 (Fed. Cir. 2005). Thus the teaching of '872 of using nickel for a first electrode material as per the rejection above would have not deterred one of ordinary skill in the art at the time of the

invention as it is not molybdenum and therefore not erode as per the Applicant's arguments.

35. In response to the argument that there is a nitride plate between the electrode and the heater of '482, the Examiner respectfully disagrees that this reference does teach the limitations of the claims. Because the first electrode and heater of Ishida et al is one unified part and because only the thickness dimensions of an electrode above the heater and the thickness of the heater itself, the application of '482 being obvious in terms of electrode and heater thicknesses only in the unified heater of Ishida which doesn't have the separate plate, the claimed range is disclosed by the '482 reference. Furthermore, it is noted that it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). MPEP 2144.05 II (B).

36. In response to the argument that '468 does not teach the disclosed ranges, the Examiner respectfully disagrees. Although '468 doesn't expressly teach the ranges, it does teach a relationship that fulfills the ranges as recited in the claims as per the rejection of Claim 2 above. This relationship has been clarified and applied to the original first set of rejections for clarity.

Conclusion

37. Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

38. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIFFANY NUCKOLS whose telephone number is (571)270-7377. The examiner can normally be reached on Monday through Friday 9:00AM - 5:30 PM.

40. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300

41. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TIFFANY NUCKOLS/
Examiner, Art Unit 1716

/Parviz Hassanzadeh/
Supervisory Patent Examiner, Art Unit 1716